

Introduction to

Basic

**MEDICAL
SCIENCES**



Anatomy, Biochemistry, Physiology, Microbiology,
Parasitology, Pathology and Pharmacology

Edited by

Oothuman Syed Ahamed



IIUM
Press

Introduction to

Basic MEDICAL SCIENCES



Anatomy, Biochemistry, Physiology, Microbiology,
Parasitology, Pathology and Pharmacology

Edited and Illustrated by
Pakeer Oothuman Syed Ahamed



**IIUM
Press**

Gombak • 2018

Copy No: 11100386105
Initial Date: Amc: 13/8/18
Location: M

First Print, 2018
© IIUM Press, IIUM

Contents

IIUM Press is a member of the Majlis Penerbitan Ilmiah Malaysia - MAPIM
(Malaysian Scholarly Publishing Council)

All rights reserved. No part of this publication may be reproduced,
stored in a retrieval system, or transmitted, in any form or by any means,
electronic, mechanical, photocopying, recording, or otherwise,
without any prior written permission of the publisher.

Perpustakaan Negara Malaysia

Cataloguing-in-Publication Data

Introduction to Basic MEDICAL SCIENCES : Anatomy, Biochemistry,
Physiology, Microbiology, Parasitology, Phathology and Pharmacology /
Edited by: Pakeer Oothuman Syed Ahamed, Illustrations by:
Pakeer Oothuman Syed Ahamed
ISBN: 978-967-418-484-1
1. Medical sciences. 2. Government publications--Malaysia.
I. Pakeer Oothuman Syed Ahamed, 1946-.
618

Published in Malaysia by
IIUM Press
International Islamic University Malaysia
P.O. Box 10, 50728 Kuala Lumpur, Malaysia

Printed in Malaysia by
Naga Global Print (M) Sdn. Bhd.
No 1, Jalan Industri Batu Caves 1/3,
Taman Perindustrian Batu Caves
68100 Selangor Darul Ehsan.

<i>Contributors</i>	vii
<i>Preface</i>	ix
Chapter 1	
Exploring our Body - Anatomy	1
Chapter 2	
Life in the Womb - Embryology	15
Chapter 3	
You under the Microscope - Histology	27
Chapter 4	
The Chemistry of Life - Biochemistry	35
Chapter 5	
Philosophy of Nature - Medical Physiology	53
Chapter 6	
Bugs and more Bugs - Medical Microbiology and Immunology	62
Chapter 7	
Worms and Creepy Crawly - Medical Parasitology and Entomology	78
Chapter 8	
Core of Medicine - Pathology	92
Chapter 9	
Remedy for Malady - Pharmacology	105
<i>Index</i>	119

16/8/18 2i
h ran
21. 8. 18 mas

fp
R
130
161P
2018

Contributors

Dr. Saad M Al-Shibli MBChB, MRCS (Ireland), Ph.D.

Dr. Imad Matloub Al Ani B.Sc. M.Phil. PhD.

Dr. Emad Nafie, MBChB, MSc, Ph.D.

Dr. Ahmad Kaid Naji Allow MBChB, MSc., Ph.D.

Dr. Mohamed Magdi El Sarsi, MBChB, Ph.D.

Dr. Shaikh Mizanur Rahman MBBS, M.Phil, Ph.D.

Dr. Mohammed Imad Al-Deen Mustaffa Mahmud, MBChB, Ph.D.

Dr. Pakeer Oothuman, M.Sc. M.Sc., Ph.D.

Dr. Soraya Ismail, MBChB, BA, MMDSc, Ph.D

Dr. Naznin Mohamad MD, Master Pathology

Dr. Anil Kumar Saxena, MBBS, MD

Introduction to

Basic MEDICAL SCIENCES

Anatomy, Biochemistry, Physiology, Microbiology, Parasitology, Pathology and Pharmacology

Students who obtain excellent grades in biology in their end of secondary school examinations sometimes think that the only career open for them is becoming doctors, dentists, pharmacists etc. Also parents at times coerce their children to choose careers that they believe are prestigious and financially rewarding. Sadly on occasions very intelligent students have had to leave a particular medical programme after 'slogging' for a year or two, changing to a more suitable course. Thus a sound advice is for students to choose programmes that they like, and that fits their aptitude. If this is done their future careers will be a source of joy rather than a chore. This book offers a 'peek' overview of the subjects in first two years in most medical and health related programmes. Herein is a collection of simple introductions to the major disciplines in basic medical sciences such as anatomy (embryology, histology), biochemistry, physiology, microbiology, parasitology, pathology and pharmacology. Students who are in their Matriculation years, Form 5, Form 6 or A Levels (biology major) who wish to pursue a programme in medicine, dentistry, pharmacy, nursing or any of the health related programme can benefit from reading these introductory chapters, and also decide if this is the field they wish to study. *They will know what they are getting into.* This is the main aim of this book. Students who have already entered a medical/ health programme can better prepare themselves for the preclinical years. Diagrams and cartoons are meant to help understand the content and amuse the readers.

DR. PAKEER OOTHUMAN B. SYED AHAMED holds a Ph.D. from London School of Hygiene and Tropical Medicine and has been teaching in the Medical Faculty, Universiti Kebangsaan Malaysia and is currently a Professor in the Department of Basic Medical Sciences, Kulliyyah of Medicine, International Islamic University Malaysia (IIUM). All other authors are specialists in the disciplines and are staff of the KOM, IIUM, except Dr. Magdi el Sarsi is a staff of SEGI University, Malaysia.

ISBN: 978-967-418-484-1



9 789674 184841

IIUM Press

Tel : +603 6196 5014 / 6196 5004

Fax : +603 6196 4862 / 6196 6298

Email : iiumbookshop@iium.edu.my

Website : <http://iiumpress.iium.edu.my/bookshop>

